

REMARKS

In response to the above Office Action, claims 1, 2, 3, and 5 have been amended to avoid the Examiner's rejections of the claims under §112, second paragraph, and to more specifically define the copolymer of the claims. Support for this amendment can be found on page 6 of the specification. In addition, claim 4 and non-elected claims 8-30 have been cancelled.

It is believed the claims now comply with the requirements of §112, and its withdrawal as a ground of rejection of the claims is requested.

Page 18 of the specification has also been amended to be consistent with the claims.

In the Office Action, the Examiner rejected claims 1-4 under §102(b) for being anticipated by Ash (U.S. 5,955,019) and claims 5-7 under §103(a) for being obvious over Ash in view of Lommerts (U.S. 5,194,210). While the Examiner rejected claims 1-4 under 35 U.S.C. §102(b), it is noted that applicants international filing date of August 5, 1999 precedes the date of publication of Ash. Accordingly, it would appear to be more appropriate to base the rejection under 35 U.S.C. §102(e).

Ash discloses a process for producing filaments from a solution of polyketone, wherein the aqueous or organic solvent is ZnX_2 or LiY , X being selected from the group consisting of Cl, Br, and I and Y being selected from the group consisting of Br, I, and SCN. In the Examples, a polyketone solution is prepared using an aqueous solution of $ZnCl_2$.

Claims 1-3 now recite that the solvent is an aqueous solution of at least one member selected from the group consisting of a calcium salt and an iron salt. Neither of

these salts are taught in Ash. Its withdrawal as a ground of rejection of claims 1-3 under §102 is therefore requested.

With respect to the rejection of claims 5-7 based on Ash in view of Lommerts, as noted above, Ash discloses a polyketone solution where the solvent is either a zinc halide such as zinc chloride or a lithium salt such as LiBr or LiI. The reference does not disclose that the solvent can be a zinc halide and a lithium salt. Column 2, lines 56-57 or column 3, lines 25-26 of Ash may refer to "ZnX₂ and LiY," but this is preceded by the words "solvents of this invention are." (Emphasis added) This then is not a teaching that both salts can be used together as the solvent. This is also consistent with the discussion in column 3, lines 37-49 where lithium salts are discussed separately from the zinc salts in lines 50-67 as well as claims 1 and 3 where the word "or" is used.

On the other hand, claims 5-7 relate to a polyketone solution where the solvent is an aqueous solution containing at least one zinc halide and at least one metal salt which is other than said zinc halide(s) and is soluble in water at 50°C in a proportion of 1 wt% or more. The inventors unexpectedly found out that there are advantage in such solutions and in the polyketone fibers produced from such solutions.

First, the polyketone solution according to claims 5-7 has a lower viscosity in comparison to polyketone solutions where the solvent is an aqueous solution of a zinc halide only. In the specification at page 39, lines 9-14, it is clearly stated that the solution viscosity of polyketone solutions containing a metal salt other than zinc halide in addition to the zinc halide is lower than that of a polyketone solution without such metal salt (Example 13). See also Table 2 on page 41 of the specification.

When the viscosity of a polyketone solution to be spun into fiber is low, it is easier to degas from the solution the air that has been introduced during the step of dissolving the polyketone. In addition, the lower the viscosity of the polyketone solution, the easier is the extrusion. Consequently, thread breakage during spinning and unevenness of the size of the fiber can be reduced. It is, therefore, significantly advantageous that the polyketone solution have a lower viscosity, in terms of stable production of even fibers.

It was further determined that the long-term stability of the polyketone solution according to claims 5-7 is better than polyketone solutions where the solvent contains only zinc halide. As noted on page 39, lines 14-19, the solution of Example 13, i.e., the solution where the solvent contains only zinc chloride, changed its color from light yellow to brown after several days, while the other solutions, i.e., the solutions containing a metal salt in addition to a zinc halide did not. (Examples 14-22). The coloring of the solution of Example 13 suggests that degradation or denaturation of the polyketone occurs when the solution is stored for a long time in a dope storage tank or when the dope is retained in dead spaces in a polymer dissolving device or in a storage tank. If the long-term stability of the polyketone solution is low, there will be a problem of inferior properties of the polyketone fiber upon industrial production. Polyketone solutions having long-term stability are, thus, significantly advantageous in the industrial production of fiber.

Therefore, the polyketone solution according to claims 5-7 unexpectedly has advantageous effects over the polyketone solution that contains only zinc halide, as disclosed in Ash.

Due to the low viscosity and good thread-forming property of the solution of claims 5-7, the fibers formed from the solutions have high strength and high elongation. Because of that, polyketone fiber can be stably produced without end breakage during spinning by using the solutions of claims 5-7. See page 40, lines 12-22 where it specifically states that the tenacity and elongation of the fiber produced from the solution of Example 13 where the solvent contains only zinc halide were lower than those of the fiber obtained from the solutions according to claims 5-7. It is also noted there that end breakage occurred during the spinning with the solution where the solvent contained only zinc halide, while there was no end breakage in the spinning with the solutions according to claim 5.

Ash only discloses polyketone solutions where the solvent contains only zinc halide. Because applicants have demonstrated that polyketone solution where the solvent contains zinc halide and at least one other metal salt have provided unexpected advantages not taught or suggested by Ash, it is submitted that such solutions cannot be considered obvious in view of Ash.

Lommerts may disclose that it is known to produce a polyketone solution having weight ratios similar to applicants, but it fails to describe what is missing in Ash, namely the combination of a zinc halide and at least one other metal salt in the solvent for the polyketone.

As required by M.P.E.P. §2143, to establish a prima facie case of obviousness the references must, in combination, teach or suggest all of the limitations of the claims. Accordingly, it is submitted that claims 5-7 cannot be considered obvious over Ash in

view of Lommerts, and withdrawal of this combination of references under §103 is therefore requested.

It is believed claims 1-3 and 5-7 are in condition for allowance and such action is therefore requested.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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